

CLAIMS

1. A laser welding method, which comprises; in a laser welding method of varying a waveform and a frequency of a laser output in a controlled manner so as to prevent occurrence of weld defects, detecting a time change in light emission strength of plasma or plume generated from a laser welded portion, and setting a laser output variation condition so that the time change in the light emission strength responds to the variation in the laser output.

2. A laser welding method, which comprises; in a laser welding method of varying a waveform and a frequency of a laser output in a controlled manner so as to prevent occurrence of weld defects, detecting a time change in light emission strength of plasma or plume generated from a laser welded portion, analyzing the frequency characteristics of the light emission to obtain an amplitude of a frequency component which is the same or near a variation frequency of the laser output, and setting a laser output variation condition so that the amplitude of the frequency component becomes maximum.

3. The laser welding method according to claim 1 or 2, which comprises; in a laser welding method of varying a waveform and a frequency of a laser output in a controlled manner so as to prevent occurrence of weld defects, detecting the time change in the light emission strength of the plasma or plume generated from the laser welded portion, setting an arbitrary threshold value to the time change in the light emission strength of the plasma or plume, and setting the laser output variation condition so that a sum of time at which the light emission strength becomes the threshold value or less becomes minimum.

4. The laser welding method according to claim 3, which comprises setting that the laser output variation condition so that the sum of the time at which the light emission strength becomes the threshold value or less for longer time than a predetermined time becomes minimum.